

NOT FOR PUBLICATION

**UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY**

SCHINDLER ELEVATOR CORP.,

Plaintiff,

v.

OTIS ELEVATOR CO.,

Defendant.

Hon. Dennis M. Cavanaugh

OTIS ELEVATOR CO.

Counterclaim Plaintiff,

v.

SCHINDLER ELEVATOR CORP. and
SCHINDLER AUFZÜGE AG,

Counterclaim Defendants.

OPINION

(Markman Hearing)

Civil Action No. 09-cv-0560 (DMC)

DENNIS M. CAVANAUGH, U.S.D.J.:

This matter comes before the Court by request of Schindler Elevator Corporation (“Plaintiff” or “Schindler”) and Otis Elevator Company (“Defendant” or “Otis”) for a claim construction hearing, pursuant to Local Patent Rule 4.5. The parties seek the Court’s interpretation of certain language contained in the claims of United States Patent No. 6,739,433 entitled “Tension Member for an Elevator” (the “433 Patent”). A hearing was held on December 3, 2009. Having considered the parties’ written and oral arguments, the Court has set forth its construction of the disputed terms.

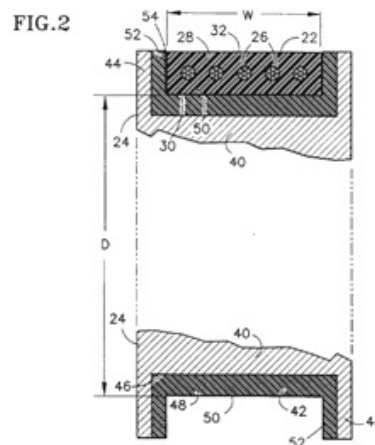
I. BACKGROUND

A. THE '433 PATENT - "TENSION MEMBER FOR AN ELEVATOR"

The '433 Patent covers flat belts for use in lifting elevator cars. Typically, elevators use hoisting ropes as tension members. The ropes are wrapped around a drive sheave. The sheave is housed within a geared machine, which is turned by an electric motor. As the machine turns the sheave, the friction between the sheave and rope causes the ropes to move, which makes the elevator car move up and down. The ropes are attached to a counterweight (weighing as much as a partially-loaded elevator car) to reduced the energy required from the motor.

The '433 Patent teaches the use of flat belts instead of round ropes as tension members. Using ropes has a number of drawbacks. For example, the traction forces between a round tension member and a sheave causes heavy wear on the ropes. Furthermore, ropes require a larger sheave and additional machinery at the top of the elevator shaft. Flat belts, in contrast, are more durable and require less space. The '433 Patent covers a tension member comprising a number of steel cords (each made up of individual wires) which are encased in a coating layer.

The two figures below depict cross-sections (i) of a flat belt tension member and (ii) a sheave, through which a tension member is running.



The application for what became the ‘433 Patent was filed on December 22, 1998. On August 16, 2000, claims 1-3, 5-9, 11-15, 18, 20, 23-25, 29-31, 34, 37, 38, 40-42 and 47-49 were rejected under 35 U.S.C. § 103. Claims 10 and 23 were also rejected under 35 U.S.C. § 112. After several amendments, on August 1, 2001, the U.S. Patent and Trademark Office (“PTO”) rejected claims 1-3, 5-15, 18, 20, 22-23 and 47-50 as obvious under § 103. Otis appealed the patent examiner’s rejection to the Board of Patent Appeals and Interferences (the “BPAI”). On August 25, 2003, the BPAI reversed and remanded the application to the examiner. The examiner granted the ‘433 Patent on May 25, 2004. The patent contains 28 claims: one independent claim (Claim 1), and 27 dependant claims.¹

B. THE INFRINGEMENT ACTION

On December 23, 2008, Schindler filed the present action seeking a declaration that the ‘433 Patent is invalid. Otis filed its answer and a counterclaim on January 22, 2009, alleging that Schindler infringed upon the ‘433 Patent. Otis amended its complaint to assert infringement against Schindler Aufzüge AG (“Aufzüge”). In its counterclaim, Otis alleges that Schindler and Aufzüge directly and indirectly infringed the ‘433 Patent. Otis specifically asserts infringement of claims 1, 2, 4, 5, 7, 9-13, 17-20, 23, 25, 26 and 28.

In accordance with the Pretrial Scheduling Order, the parties have submitted Markman briefs setting forth their proposed constructions of the disputed terms in the ‘433 Patent, and supporting legal arguments.

¹ The facts set forth in the Background section are taken from the parties’ Markman briefs.

II. LEGAL STANDARD

Claim construction is a matter of law to be determined solely by the court. Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005), cert. denied, 546 U.S. 1170 (2006). Analysis of a patent infringement claim is a two-step process. Tate Access Floors, Inc. v. Interface Architectural Resources, Inc., 279 F.3d 1357, 1365 (Fed. Cir. 2002). A court must first construe the meaning and scope of the patent claims, Markman v. Westview Instruments, Inc., 52 F.3d 967, 978 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996), and then compare the claims as construed to the alleged infringing product. Tate, 279 F.3d at 1365. At this stage, the Court will only engage in the first step.

To construe the terms of a patent, a court should look first to the language of the claim itself. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). Terms within a claim “are generally given their ordinary and customary meaning.” Id. “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” Phillips, 415 F.3d at 1313.

To determine how a person of skill in the art would understand a patent’s claim language, a court must first examine the intrinsic record—the patent itself, including the claims, the specification and the prosecution history. Vitronics, 90 F.3d at 1582 (citing Markman, 52 F.3d at 979). The specification “acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication.” Id. Indeed, the Federal Circuit has explained that the specification is “usually . . . dispositive . . . [and is the] best guide to the meaning of a disputed term.” Phillips, 415 F.3d at 1315 (quoting Vitronics, 90 F.3d at 1582)(internal quotations omitted). It is proper for a court to “rely heavily on the written description for guidance as to the meaning of the claims.” Id. at 1317.

A patent's prosecution history is also a critical source of guidance, as it "provides evidence of how the PTO and the inventor understood the patent." Id. The prosecution history is the complete record of the proceedings before the PTO, and "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Id. The Federal Circuit has repeatedly emphasized the need to consult the prosecution history to "exclude any interpretation that was disclaimed during prosecution." See Rhodia Chimie v. PPG Indus., 402 F.3d 1371, 1384 (Fed. Cir. 2005) (recognizing that, in exchanges with the PTO, a patent applicant may disavow or disclaim certain claim coverage, thereby precluding any claim interpretation that would encompass the disavowed or disclaimed subject matter).

After consulting intrinsic evidence, a district court may also examine extrinsic evidence—i.e., "all evidence external to the patent and prosecution history." Markman, 52 F.3d at 980; Phillips, 415 F.3d at 1317-18 (stating that the Federal Circuit "ha[s] authorized district courts to rely on extrinsic evidence"). Such evidence consists of testimony by the inventor or by experts, dictionaries, and treatises. Markman, 52 F.3d at 980. However, extrinsic evidence is generally "less significant than the intrinsic record in determining the legally operative meaning of claim language." C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 862 (Fed. Cir. 2004) (quotations omitted). Extrinsic evidence, when relied upon, must be considered in view of the specification and prosecution history. Phillips, 415 F.3d at 1320. ("[E]xtrinsic evidence may be useful to the court, but it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of intrinsic evidence.").

The Court will set forth the disputed terms, and the parties' proposed interpretations thereof, followed by the Court's construction. The terms are arranged in the order that they appear in the '433 patent.

III. DISCUSSION

A. CLAIM 1

Claim 1 of the '433 Patent contains nine disputed terms. Claim 1, with the disputed terms underlined, reads:

A tension member for providing lifting force to a car of an elevator system, comprising:

a plurality of discrete cords, constructed from a plurality of individual wires, wherein all wires are less than 0.25 millimeters in diameter, said plurality of cords being arranged side-by-side;

a coating layer substantially enveloping said plurality of cords and having an aspect ratio defined as the ratio of width w relative to thickness t, greater than one.

1. *“tension member”*

Schindler proposes that “tension member” be construed to mean “structure which is stretched taut.” Schindler’s construction is premised upon the WEBSTER’S DICTIONARY definition of the term, which defines tension as “the act of stretching or the condition or degree of being stretched to stiffness: tautness.” In its responsive brief, Otis suggests that the Court construe “tension member” as a “structure which during use is stretched or under stress.”

Each parties’ proposed construction will be adopted in part.² The Court adopts Schindler’s interpretation that requires the tension member to be “stretched taut.”³ However, as Otis argues, the

² The Court will accordingly derive its construction of the term from a composite of the parties’ proposed definitions. See, e.g., CA, Inc. v. Simple.com, Inc., 2009 U.S. Dist. LEXIS 25241, at *103 (E.D.N.Y. Mar. 5, 2009); Taltech Ltd. v. Esquel Enters., 410 F. Supp. 2d 977, 997 (W.D. Wash. 2006).

³ Otis asserts that including the word “taut” will lead to a dispute over the definition of “taut.” This result, however, is no different than if the Court were to use other words that have been proposed such as “under stress” or “stiffness.”

phrase “during use” is necessary to provide a clear definition of the term. The Court will, thus, construe “tension member” as a “structure which, during use, is stretched taut.”

2. “for providing lifting force to a car of an elevator system”

Otis asserts that the preamble “for providing lifting force to a car of an elevator system” should be considered a claim limitation. Otis notes that it used the preamble to distinguish its invention over the prior art, and therefore the preamble should be considered a claim limitation. Otis, then, asserts that the term should be construed to mean “for driv[ing] the car of a traction elevator system.” Schindler responds that the term should not be considered a claim limitation because it simply recites an intended use of the claimed tension member, and does not describe any structural feature of said tension member. Schindler argues that the rest of the claim fully describes the claimed apparatus, and as the preamble is not “necessary to give life, meaning, and vitality to the claim” and, is therefore, not a claim limitation.

Courts determine whether a preamble limits a patent claim on “review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.” Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed. Cir. 1989). A preamble can limit the claimed invention if it recites essential structure or steps, or if it is “necessary to give life, meaning, and vitality” to the claim. Catalina Mktg. Int’l v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999)). Further, clear reliance on the preamble during prosecution to distinguish the claimed invention from prior art indicates that the preamble defines the claimed invention, and is thus a claim limitation. See Purdue Pharma L.P. v. Endo Pharms. Inc., 438 F.3d 1123, 1136 (Fed. Cir. 2006) (“Under the doctrine of prosecution disclaimer, a patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during

prosecution.”); Catalina Mktg., 289 F.3d at 808 (“[S]tatements of intended use or asserted benefits in the preamble may, in rare instances, limit apparatus claims, but only if the applicant clearly and unmistakably relied on those uses or benefits to distinguish prior art.”); Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368, 1375 (Fed. Cir. 2001).

Here, the Court finds “for providing lifting force to a car of an elevator system” to be a claim limitation for three reasons. First, in response to a PTO rejection, Otis explicitly relied on the preamble to distinguish its invention from the prior art. See Purdue Pharma, 438 F.3d at 1136; Catalina Mktg., 289 F.3d at 808. In responding to the examiner’s rejection, Otis emphasized that certain aspects of the apparatus were particular to its application in an elevator system. For instance, in explaining why it was essential to use wires of certain diameters, the examiner noted that “the feature is critical to the claimed invention, in that it permits the use of a sheave of smaller diameter . . . [which was necessary to achieving the inventor’s goal,] especially in an elevator tension member.” Further, the width of the belt (i.e., the aspect ratio) was also an important distinction over the prior art in light of the elevator-specific load carrying requirements. Based on these distinctions over the prior art, the examiner issued the patent.

A second, and related, reason that the preamble must be given effect is because the distinctions over the prior art were structural. See Poly-America, L.P. v. GSE Lining Technology, Inc., 383 F.3d 1303 (Fed. Cir. 2004) (finding that a preamble was a claim limitation, noting that the preamble was related to structural features); Catalina Mktg., 289 F.3d at 808; Corning Glass Works, 868 F.2d at 1257. Here, the fact that the tension member was designed “for providing lifting force to a car of an elevator system” is more than just an intended use of the invention. As noted above, Otis’ appeal to the BPAI, and the PTO’s corresponding decision, emphasized the **lifting** force requirement of ‘433 Patent, as compared with a prior art patent covering a conveyor belt.

Third, throughout the specification Otis emphasized that the tension member would be used to provide lifting force to an elevator car. Although the specification notes in passing that it might be possible to use the claimed tension member for other uses, explicit references to use in an “elevator system” appear in the title, abstract, technical field and background section of the patent. See Poly-America, 383 F.3d at 1310 (Fed. Cir. 2004) (finding that a preamble was a claim limitation because, in addition to the fact that the preamble was related to structural features, **the preamble term was repeated throughout the patent specification, i.e., in the title and summary of the invention.**). Courts must be careful not to impose limitations from the specification into a patent’s claims. Here, however, the ‘433 Patent’s pervasive reference to the invention’s use in elevator systems supports the Court’s conclusion above regarding the preamble’s limiting effect.

This Court finds that the intrinsic evidence—the prosecution history and specification—illustrate that the claimed invention is limited to application in an elevator system. The preamble is a fundamental part of the description of the invention, and was explicitly used to distinguish the invention over the prior art. The preamble, therefore, properly limits the scope of the patent claim. See, e.g., Catalina Mktg., 289 F.3d at 808; Purdue Pharma L.P., 438 F.3d at 1136. Having determined that “for providing lifting force to a car of an elevator system” operates as a claim limitation, the Court must next determine how to construe the term.

Although the Court agrees with Otis that, in this instance, the preamble should be treated as a claim limitation, it declines to adopt Otis’ proposed construction of “for providing lifting force to a car of an elevator system.” Otis suggests that the term be defined as “that drives the car of a traction elevator.” Schindler responds that inclusion of the words “drive” and “traction” are impermissible limitations on the term. This Court agrees. As Schindler asserts, the tension member does not “drive” the elevator—it is the medium through which the torque of the motor drives the elevator car.

The tension member also need not be limited to use in “traction” elevators. The patent explicitly states that the claimed tension member “may be useful and have benefits in elevator applications that do not use a traction sheave . . . such as indirectly roped elevator systems, linear motor driven elevator systems, or self-propelled elevators having a counterweight.” For these reasons, the Court will not adopt Otis’ proposed construction.

The term “for providing lifting force to a car of an elevator system” will be considered a claim limitation (see section III.A.2, supra), however, the Court need not construe the term.

3. “cords”

Otis asserts that “cords” should be defined as “load-carrying groups of strands.” Schindler contends that no construction of the term is necessary. Alternatively, Schindler disputes Otis’ inclusion of the “load-carrying” limitation.

The Court, again, agrees with both parties in part. “Cords” are properly defined as “groups of strands.” However, the term “cords” need not contain the “load-carrying” limitation.⁴

4. “all wires”

Schindler asserts that “all wires” should mean “every single one of the wires.”⁵ Otis contends that this term does not require construction.

The Court agrees with Otis. “[D]istrict courts are not (and should not be) required to construe every limitation present in a patent’s asserted claims.” O2 Micro Int’l Ltd. v. Beyond Innovation

⁴ The Court, above, has already determined that the invention is limited to use as a tension member in an elevator system. See section III.A.2. Therefore, the “load-carrying” function of the cords is already implied.

⁵ Schindler states that based on the prosecution history—wherein Otis specifically amended the claim to include the word “all”—the apparatus must be comprised of wires all of which are under 0.25 millimeters in diameter. Although this is an accurate assertion, this Court’s construction is not required.

Tech. Co., 521 F.3d 1351, 1362 (Fed. Cir. 2008). Here, “the ordinary meaning of claim language as understood by a person of skill in the art [is] readily apparent . . . and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” Phillips, 415 F.3d at 1314. The meaning of the word “all” is readily apparent to anyone reading the ‘433 Patent.

The Court will not construe the term “all wires.”

5. “*less than 0.25 millimeters in diameter*”

Schindler asserts that “less than 0.25 millimeters in diameter” should be construed as “diameter which under all circumstances must be less than 0.25 millimeters.” Otis asserts that this term does not need to be construed. While Schindler correctly notes that during the prosecution of the patent Otis emphasized that all wires must be less than 0.25 millimeters in diameter, the claim, as recited, clearly states this limitation.

No construction of the term “less than 0.25 millimeters in diameter” is necessary. See id.

6. “*side-by-side*”

Claim one recites “a plurality of cords arranged side-by-side.” Schindler asserts that “side-by-side” should be construed as “each one immediately next to and directly touching an adjacent one.” Schindler bases this interpretation on the fact that the specification instructs that “it is desirable to minimize the spacing . . . between the cords.” Otis responds that “side-by-side” should simply mean “arranged linearly along the width dimension.” Otis’ definition, then, does not require that the cords be in contact with each other.

The Court will adopt Otis’ construction. Schindler’s proposed construction misconstrues the above-quoted portion of the patent specification. Although according to the specification spacing between cords should be “minimize[d]” if possible, it does not follow that the invention requires

there to be no spacing at all. In fact, all of the embodiments depicted in the patent contain some spacing. See Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295,1305 (Fed. Cir. 2007) (construing terms in a manner that does not exclude examples in the specification); Oatley Co. V. IPS Corp., 514 F.3d 1271, 1277 (Fed. Cir. 2008) (same). Furthermore, the specification explicitly recognizes that completely eliminating separation between the cords may not be possible. Schindler's proposed construction would, therefore, potentially lead to Otis' claim covering an invention that is impossible to achieve. See Cross Atl. Capital Partners, Inc. v. Facebook, Inc., 2008 U.S. Dist. LEXIS 15862, at *24 (E.D. Pa. Feb. 29, 2008) (rejecting a proposed term construction that would make it impossible for the invention to function properly). Otis' definition more accurately reflects the claim language, and properly encompasses for the examples contained in the patent.

The Court will construe "side-by-side" to mean "arranged linearly along the width dimension."

7. "*coating layer*"

Claim 1 recites a "coating layer substantially enveloping said plurality of cords." Otis asserts that "coating layer" should mean "a layer of material that separates individual cords and defines an engagement surface for engaging a traction sheave." Schindler proposes that the term be defined as "a material which surrounds, fully encases or encapsulates the cords at least around the circumference of the cords." Schindler asserts that Otis' interpretation is incorrect as the "separates individual cords" and "defines an engagement surface for engaging a traction sheave" language imports extraneous limitations into the term.

The Court will adopt a construction of "coating layer" that is similar to Schindler's proposed definition. First, as Schindler argues, the "separates individual cords" limitation should not be read into the term. See Sram Corp. V. AD-II Eng'g. Inc., 465 F.3d 1351, 1358 (Fed. Cir. 2005).

Although it is true that most embodiments of the claimed tension member might have a coating layer that separates the individual cords, this separation is not mandatory. Otis listed the required functions of the coating layer in the specification and in an amendment to the patent—in neither instance did Otis recite a “separation” function. Just as the Court rejected Schindler’s argument that the cords **must** be touching each other (see section III.A.6 above), it rejects Otis’ assertion that the wires **cannot** be in contact with each other in any potential embodiment of the claim.

The Court will construe “coating layer” as “a layer of material that substantially surrounds, encases or encapsulates the cords, and defines an engagement surface for engaging a sheave.”

8. “*substantially envelopes*”

In accordance with the Court’s construction of “coating layer” as “a layer of material that substantially surrounds, encases or encapsulates the cords, and defines an engagement surface for engaging a sheave” it follows that “substantially envelopes” means “substantially surrounds, encases or encapsulates.”⁶

9. “*an aspect ratio defined as the ratio of width w relative to thickness t* ”

Claim 1 recites a coating layer having “an aspect ratio defined as the ratio of width w relative to thickness t .” Otis asserts that this term means “an aspect ratio defined as the width of the coating layer relative to the thickness t_1 of the coating layer at the locations across the width of the coating layer where the layer substantially envelopes the cords.” Schindler’s proposed construction is “a

⁶ Schindler argues that “substantially enveloping” should mean “fully encasing or encapsulating; completely surrounding at least around the circumference [of the cords].” Although the preferred embodiments show fully encased cords, the patent’s scope need not be so limited. See Kara Technologies Inc. v. Stamps.com Inc., 2009 U.S. App. LEXIS 21120, at *13 (Fed. Cir. Sept 24, 2009). The term “substantially” is not equivalent to “completely.” The plain meaning of “substantially enveloping,” then, does not indicate that the cords must be completely encased by the coating layer in every possible embodiment of the invention.

constant, uniform, single value representing the ratio of a constant, uniform, single value thickness of the tension member, where width **w** is the distance from one lateral edge to the opposite lateral edge of the tension member, and thickness **t** is measured orthogonal to the width **w** and represents the distance from one surface of the tension member to an opposite surface of the tension member.” In short, Schindler asserts that the width of the tension member must be uniform, such as in the tension belt depicted in Figure 9 of the ‘433 Patent. Otis responds that the width need not be uniform, as depicted in Figure 5 of the patent.

Otis’ construction is proper for two reasons. First, certain embodiments of the tension member do not have a width of a “constant, uniform, single value.” In embodiments such as depicted in Figure 5 of the specification, thickness **t1** is not constant across the width of the belt. If possible, the Court should not read depicted embodiments of the invention out of the patent’s scope. See Verizon, 503 F.3d at 1305. Second, the literal language of the specification dictates that the **t1** measurement encompass the widest width of the belt. For example, as the specification notes, **t1** (total thickness) = **t2** (the upper coating layer, i.e., between cords and engagement surface) + **t3** (the lower coating layer) + **d** (diameter of the inner cords). As such, **t1** must account for the total width of the cords and the coating. The thickness of the coating layer, then, must be measured where the coating layers surrounds a cord. Schindler’s definition does not properly account for tension belts with a non-uniform width.

The Court will construe “an aspect ratio defined as the ratio of width **w** relative to thickness **t**” to mean “an aspect ratio defined as the width of the coating layer relative to the thickness **t1** of the coating layer at the locations across the width of the coating layer where the layer substantially envelopes the cords.”

B. CLAIM 2

Claim 2 of the '433 Patent contains one disputed term. Claim 2, with the disputed term underlined, reads:

A tension member according to claim 1 wherein said plurality of wires are in a twisted pattern creating strands of several wires and a center wire.

Schindler asserts that “twisted pattern” should be construed to mean “an arrangement of several elements where at least one of the elements is turned around at least one other element in a longitudinal direction.” Otis asserts that “twisted pattern” does not require construction. See Phillips, 415 F.3d at 1314 (finding that where “the ordinary meaning of claim language as understood by a person of skill in the art [is] readily apparent” a court must simply apply “the widely accepted meaning of [the] commonly understood words.”).

The Court agrees with Otis, and will not construe “twisted pattern.”

C. CLAIM 4

Claim 4 of the '433 Patent contains one disputed term. Claim 4, with the disputed term underlined, reads:

A tension member according to claim 2 wherein said strand pattern is defined as said several wires twisted around said one center wire.

Schindler asserts that “said strand pattern” should be interpreted to mean “a particular arrangement of several strands.” Schindler notes that Claim 2 does not contain the words “strand pattern,” and accordingly, Schindler argues that there is no antecedent basis for the dependant claim of Claim 4. Otis responds that “said strand pattern” should mean “the group of twisted wires recited in claim 2.”

The use of the word “said” indicates that Claim 4 is referring to the particular strand pattern of Claim 2. The phrase “said strand pattern” refers to the “plurality of wires . . . in a twisted pattern”

disclosed in Claim 2. Although the exact phrase “strand pattern” is not used in Claim 2, it does not follow that the term “said strand pattern” of Claim 4 cannot refer to the group of strands contained in Claim 2. See Energizer Holdings, Inc. v. ITC, 435 F.3d 1366, 1371 (Fed. Cir. 2006) (“[A]n antecedent basis can be presented by implication.”). Accordingly, as Otis proposes, “said strand pattern” will be defined as “the group of twisted wires recited in Claim 2.”

D. CLAIM 5

Claim 5 of the ‘433 Patent contains one disputed term. Claim 5, with the disputed term underlined, reads:

A tension member according to claim 4, wherein the coating layer is formed from an elastomer.

Otis proposes that the term be defined as “a material, usually synthetic, having elastic properties akin to those of rubber.” Schindler asserts that “elastomer” should be interpreted as “a material, usually synthetic, having elastic properties.”

Otis’ proposed definition is taken verbatim from the LAROUSSE DICTIONARY OF SCIENCE. Relying on such a source is appropriate where a term is not defined by intrinsic evidence. See Markman, 52 F.3d at 980. Schindler responds that the prosecution history discredits rubber as a coating layer, and therefore the “akin to those of rubber” language should be removed. Specifically, it points to Otis’ statement to the PTO that rubber “provide[s] adequate traction but does not provide adequate wear when subjected to the shear loads applied by the cords in an elevator application.” This, however, is inapposite. The phrase “properties akin to those of rubber” simply provides an illustration of the elastic properties that are characteristic of elastomers— the fact that natural rubber itself is not an effective coating layer does not make Otis’ construction deficient. The Court will

define “elastomer” as “a material, usually synthetic, having elastic properties akin to those of rubber.”

E. CLAIM 17

Claim 17 of the ‘433 Patent contains one disputed term. Claim 17, with the disputed term underlined, reads:

A tension member according to claim 1 wherein said wires diameters are less than 0.20 millimeters.

Schindler asserts that “less than 0.20 millimeters” should mean “under all circumstances must be less than 0.20 millimeters.” Otis believes that the term does not require construction.

The Court will not construe the term for the same reasons stated above in regard to the term “less than 0.25 millimeters in diameter.” See Section III.A.5, supra.

F. CLAIM 18

Claim 18 of the ‘433 Patent contains one disputed term. Claim 18, with the disputed term underlined, reads:

A tension member according to claim 1 wherein said cords are arranged in spaced relation to each other.

Schindler asserts that “cords are arranged in spaced relation to each other” should be construed as “cords are positioned at predetermined positions relative to each other.” Otis suggests that the term should be interpreted to mean “cords are positioned with predetermined separation(s) between adjacent cords.”

Otis’ construction inappropriately reads an extraneous limitation into the term by implying mandatory separation between the cords. See In re Cruciferous Sprout Litigation, 301 F.3d 1343, 1348 (Fed. Cir. 2002). As noted above, it is very likely that in practice the tension member will contain inner cords that do not touch each other. See Section III.A.6. Separation, however, is not a

requirement, and the Court will not impart such a limitation on the claim. “Cords are arranged in spaced relation to each other” will be construed as “cords are positioned at predetermined positions relative to each other.”

G. CLAIM 21⁷

Claim 21 of the ‘433 Patent contains one disputed term. Claim 21, with the disputed term underlined, reads:

A tension member according to claim 20 wherein said elastomer is a thermoplastic urethane.

Schindler’s proposed construction of “thermoplastic urethane” is “a material that softens when heated and hardens when cooled and exhibits the functions of the coating layer including

⁷ Otis contends that several of the disputed terms discussed below are no longer within this Court’s jurisdiction. Otis argues that because it entered a partial covenant not to sue with respect to the product covered by claims 21, 24 and 27 (the Gates LL MV 90-07 Tension Member), the Court no longer has subject matter jurisdiction over those claims. Accordingly, Otis asserts, the Court need not construe the three disputed terms therein—“thermoplastic urethane,” “engagement surface of the tension member,” and “engagement surface is shaped by an outer contour of said plurality of cords.”

This Court does not agree. The Federal Circuit has recently discussed the factors a court must consider to determine whether it has subject matter jurisdiction over a party’s declaratory judgment claim. The Court explained that “the question in each case is whether the facts alleged, under all the circumstances, show that there is a substantial controversy, between the parties having adverse legal interests, of sufficient immediacy and reality to warrant the issuance of a declaratory judgment.” MedImmune, Inc. v. Genentech, Inc., 549 U.S. 118, 127 (2007). To satisfy this test—i.e., to demonstrate that a substantial controversy of sufficient immediacy exists—there must be (1) some affirmative act by Otis relating to enforcement of its patent rights, see, e.g., Prasco, LLC v. Medicis Pharm. Corp., 537 F.3d 1329, 1338-39 (Fed. Cir. 2008), and (2) Schindler must have undertaken some “meaningful preparation to conduct potentially infringing activity.” See Cat Tech LLC v. TubMaster, Inc., 528 F.3d 871, 880 (Fed. Cir. 2008). Here, Otis brings an action for infringement based on activities related to the Gates Tension Member **and “products substantially similar to the Gates Tension Member.”** The covenant not to sue, however, does not cover “any activities related to any products other than the Gates Tension member.” Under these circumstances, the two prongs of the test set forth above are satisfied. First, by asserting a claim for infringement, Otis has made an affirmative act relating to the enforcement of its patent rights. Second, Schindler has undertaken preparations to conduct infringing activities, as Schindler entities are already using belts other than the Gates Tension Member. The Court finds that there is a substantial controversy between the parties regarding to claims 21, 24 and 27, and it has subject matter jurisdiction over the disputed terms therein.

traction, wear, transmission of traction loads to the cords, and resistance to environmental factors.” Otis proposes that the term be defined as “a material that softens when heated and hardens when cooled, is formed from the reaction of isocyanates and polyols, and is capable of returning to its original length or shape without substantial deformation after being stretched, deformed, compressed or expanded.”

Both parties agree that a “thermoplastic” is “a material that softens when heated and hardens when cooled.” The dispute is over the definition of “urethane.”

Schindler asserts that the specification and prosecution history focus on the functional properties associated with urethanes. Accordingly, Schindler asserts that the term “urethane” should be defined as the group of materials that meet these functional criteria—i.e., materials that “exhibit[] the functions of the coating layer including traction, wear, transmission of traction loads to the cords, and resistance to environmental factors.” Otis, in contrast, asserts that “urethane” should be construed in accordance with its functional **and chemical** properties—i.e., a material “formed from the reaction of isocyanates and polyols.” Otis further argues that Schindler’s strictly function definition would encompass more than just urethanes, and thus effectively delete the “urethane” limitation from the claim.

The Court agrees with Otis. Claim 21 is a simple dependant claim (relying on Claim 20) that imports one new limitation—that the coating layer be a “thermoplastic **urethane**” (emphasis added). The claim does not read: “a thermoplastic urethane **or other thermoplastic material** exhibiting similar functional properties.” Therefore, while Schindler accurately notes that intrinsic evidence should be relied upon to construe the term, the specification cannot be used to essentially delete a word within a patent claim. See Bicon, Inc. v. The Straumann Co., 441 F3d 945, 951 (Fed. Cir. 2006). The coating layer of Claim 21, as a urethane, is by definition “formed from the reaction of

isocyanates and polyols.”⁸ The Court will adopt Otis’ definition of “urethane” in its construction of “thermoplastic urethane.”

The Court has adopted the chemical definition of “thermoplastic urethane” proposed by Otis. This fact notwithstanding, both parties agree that the composite term “thermoplastic urethane” in Claim 21 has functional limitations. The Court will adopt Schindler’s proposed construction of the functional limitations of “thermoplastic urethane”—the definition will account for the fact that the thermoplastic urethane coating serves a variety of functions including “traction, wear, transmission of traction loads to the cords, and resistance to environmental factors.”⁹

“Thermoplastic urethane” will be construed to mean “a material that softens when heated and hardens when cooled, is formed from the reaction of isocyanates and polyols, and exhibits the functions of the coating layer including traction, wear, transmission of traction loads to the cords, and resistance to environmental factors.”

H. CLAIM 24

Claim 24 of the ‘433 Patent contains three disputed terms. Claim 24, with the disputed terms underlined, reads:

⁸ The intrinsic evidence associated with the ‘433 Patent does not speak to the chemical definition of a urethane, and therefore the Court must rely on extrinsic evidence. Markman, 52 F.3d at 980; Phillips, 415 F.3d at 1317-18 (stating that the Federal Circuit “ha[s] authorized district courts to rely on extrinsic evidence”).

⁹ Otis’ suggested definition of urethane is: a material that “is capable of returning to its original length or shape without substantial deformation after being stretched, deformed, compressed, or expanded.” This definition is too limited. Otis’ definition only relates to the belt’s ability to resist load-bearing stress. The specification also recites a number of limitations that pertain to traction and durability. Schindler’s definition encompasses these functional attributes.

A tension member according to claim 1, wherein the sheave includes an engagement surface, and wherein the engagement surface of the tension member is contoured to complement the engagement surface of the sheave.¹⁰

1. “*the engagement surface of the tension member*”

Schindler proposes that “the engagement surface of the tension member” be defined as “an outermost layer or surface of the tension member where the entire outermost layer or surface comes into contact with a corresponding surface of the sheave.” Otis proposes that the term be construed as “the portion of the tension member that is in contact with a sheave and receives traction forces from the sheave.” Each parties’ definition imposes an extraneous limitation.

Schindler’s proposed definition is too narrow. It provides that the entire outermost layer comes into contact with . . . the sheave.” Schindler relies on the figures contained in the patent to support this proposition. The figures, however, depict preferred embodiments of the claims—they do not define the precise boundaries of the invention. See MBO Labs, Inc. v. Becton, Dickinson & Co., 474 F3d 1323, 1333 (Fed. Cir. 2007); see also Kara Technologies Inc. v. Stamps.com Inc., 2009 U.S. App. LEXIS 21120, at *13 (Fed. Cir. 2009). The entire surface of the tension member does not need to come into contact with the sheave in every potential embodiment of the invention.

Otis’ definition requires that the tension member “receives traction forces from the sheave.” This is also an extraneous limitation. The patent specification explicitly states that other secondary

¹⁰ Schindler notes that Claim 24 refers to “the sheave” despite the fact that neither Claim 24, or Claim 1 (on which 24 depends), recites the term “sheave.” Schindler argues that the claim suffers from an insufficient antecedent basis and is invalid. However, an antecedent basis may be implied. See Energizer Holdings, Inc. v. ITC, 435 F.3d at 1371. Based upon this Court’s determination that the term “for providing lifting force to a car of an elevator system” is a claim limitation, and because a sheave is a necessary part of an elevator system, Claim 1 implies that the claimed invention interacts with a sheave. The Court finds that Claim 24 does not suffer from an insufficient antecedent basis, and will, accordingly, construe the term.

applications of the invention, also related to elevator systems, do not use a traction sheave.¹¹ Accordingly, the term cannot include the “receives traction forces from the sheave” language proposed by Otis.

The Court will construe “the engagement surface of the tension member” as “the portion of the tension member that comes into contact with the corresponding surface of the sheave.”

2. “*contoured to complement*”

Schindler asserts that “contoured to complement” should mean “configured so as to mutually complete so that there is no gap in between.” Otis proposes: “shaped to guide engagement of the tension member with the sheave.”

Schindler makes three arguments in support of its interpretation. First, it cites a dictionary definition of complement as “one of two mutually completing parts.” Second, Schindler relies on the figures in the patent depicting a completely engaged tension member and sheave. Third, Schindler argues that a gap between the engagement surface and the sheave would go against a stated purpose of the invention (i.e., reduce pressure on the tension member by increasing traction forces between the tension member and sheave).

This Court disagrees with Schindler, and finds the “no gap” limitation proposed by Schindler to be inappropriate. First, the dictionary definition Schindler relies upon is inapposite, because as noted above in Section III.H.1, the entire engagement surface of the tension member need not come into contact with the sheave. Therefore, even if the tension member surface and sheave surface were a precise fit (i.e., contoured to be perfectly complementary), they still might not be in full contact at

¹¹ The ‘433 Patent states: “Although described herein as primarily a traction device for use in an elevator application having a traction sheave, the tension member may be useful and have benefits in elevator applications that do not use a traction sheave . . . such as indirectly roped elevator systems, linear motor driven electric systems, or self-propelled elevators having a counterweight.”

all times. Next, as previously noted, strict reliance on the figures contained in the patent is improper. See MBO Labs, Inc., 474 F.3d at 1333; Kara Technologies, 2009 U.S. App. LEXIS 21120, at *13. Finally, Schindler's assertion that the existence of any gap between the tension member and sheave would reduce overall friction is not accurate. For example, if a belt was contoured in a wave pattern (such as the belt contained in Figure 5) it may have more surface contact with a similarly contoured sheave than a comparable flat-surfaced belt and flat-surfaced sheave—even if there were slight gaps between the contoured belt and sheave in particular locations. For these reasons, the Court does not find Schindler's arguments in support of its construction of “contoured to complement” to be compelling.

Otis' suggests that the Court construe “contoured to complement” to mean “shaped to guide engagement of the tension member with the sheave.” This functional description of the contours of the tension member is appropriate, as it “tells us something about the structural requirements” of the claim. K-2 Corp. v. Salomon S.A., 191 F.3d 1356, 1363 (Fed. Cir. 1999) (noting that where a functional purpose requires a certain structure, the statement of function can serve as a claim limitation).

The Court will adopt Otis' construction, and interpret “contoured to complement” to mean “shaped to guide engagement of the tension member with the sheave.”

3. “*the engagement surface of the sheave*”

Otis asserts that “the engagement surface of the sheave” should be construed to mean “the portion of the surface of a sheave that is in contact with the tension member and transmits traction forces from the sheave to the tension member.” Schindler proposes “an outermost layer or surface of the sheave where the entire outermost layer or surface comes into contact with a corresponding surface of the tension member.” The parties' arguments are largely comparable to their arguments

regarding the construction of “engagement surface of the tension member.” See Section III.H.1, supra.

In accordance with the Court’s earlier discussion, see id., “the engagement surface of the sheave” will be construed to mean “the portion of the sheave that comes into contact with a corresponding surface of the tension member.”

I. CLAIM 25

Claim 25 of the ‘433 Patent contains one disputed term. Claim 25, with the disputed term underlined, reads:

A tension member according to claim 1 wherein said coating layer defines a single engagement surface for the plurality of individual cords.

Otis proposes that “single engagement surface for the plurality of individual cords” be defined as “a single surface of the coating layer facing the traction sheave.” Schindler proposes that the term be defined as “one outermost layer or surface of the tension member where the entire outermost layer or surface comes into contact with a corresponding surface of the sheave for the plurality of cords.” Schindler’s construction seeks to add an extraneous limitation to the claim—namely, that the **entire** surface of the tension member come into contact with the sheave. This argument, which was previously addressed above in respect to Claim 24, must be rejected. See Section III.H.1, supra.¹²

¹² The Court notes that “single engagement surface for the plurality of individual cords” (Claim 25) is defined differently than “the engagement surface of the tension member” (Claim 24) because the claims cover distinct embodiments of the invention. Claim 24 includes embodiments of the invention wherein the tension member may come into contact with more than one sheave. Claim 25, on the other hand, covers potential embodiments wherein the tension member only comes into contact with a single sheave at one location.

The Court will construe “single engagement surface for the plurality of individual cords” to mean “the portion of the tension member that comes into contact with the corresponding surface of the sheave.”

J. CLAIM 27

Claim 27 of the ‘433 Patent contains one disputed term. Claim 27, with the disputed term underlined, reads:

A tension member according to claim 25 wherein said engagement surface is shaped by an outer contour of said plurality of cords.

Schindler proposes construing the highlighted term as “an outermost layer or surface of the tension member wherein the entire outermost layer or surface comes into contact with a corresponding surface of the sheave and wherein the outermost layer or surface has a shape which is the same as the shape of a portion of each of the cords.” The first portion of the phrase, “engagement surface,” has already been defined in regard to Claim 25.¹³ The Court, therefore, must only construe the “is shaped by an outer contour of said plurality of cords” language.

Schindler asserts that the term “is shaped by an outer contour of said plurality of cords” should mean “has a shape which is the same as the shape of a portion of each of the cords.” Otis asserts that the term does not require construction. The Court agrees with Otis. See O2 Micro, 521 F.3d at 1362.

The Court need not define the term “is shaped by an outer contour of said plurality of cords.”

¹³ “Engagement surface” will be defined as “the portion of outermost layer or surface of the tension member that comes into contact with a corresponding surface of the sheave.”

IV. CONCLUSION

The Court, in accordance with the discussion above, has construed the terms of the '433 Patent.

S/ Dennis M. Cavanaugh
Dennis M. Cavanaugh, U.S.D.J.

Date: January 13, 2010
Original: Clerk's Office
cc: All Counsel of Record
The Honorable Mark Falk, U.S.M.J.
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